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COMMITTEE ON COMMERCE, SCIENCE AND TRANSPORTATION

SUBCOMMITTEE ON SURFACE TRANSPORTATION
AND MERCHANT MARINE

RAIL SAFETY

Testimony of M. B. Oglesby, Jr.,
President and Chief Executive Officer
Association of American Railroads

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Mr. Chairman, the Association of American Railroads (AAR) appreciates this opportunity to present its member railroads' perspective on railroad safety. AAR's members account for 93 percent of the railroad industry's freight revenues, operate 77 percent of the industry's line-haul mileage, employ 91 percent of rail workers, and operate almost all of the nation's intercity passenger trains.

AAR's member railroads support swift reauthorization of the rail safety program without the inclusion of new mandates for additional regulations. As my testimony will show, railroads have dramatically

improved their safety record and many programs are underway that will result in further improvement.

I. The Railroad Industry Has Become Significantly Safer

The year 1980 was a watershed year for the railroads. That year saw the enactment of the Staggers Rail Act, which partially deregulated the railroad industry and helped restore its financial health. The Staggers Act's economic reforms have enabled the railroads to invest consistently in their infrastructure over the last eighteen years. Since 1990, the railroad industry has invested \$100 billion in its infrastructure. The ability to make infrastructure improvements has been and remains indispensable to improving safety.

In addition to improving infrastructure generally, the railroads have in place mechanisms to address specifically ways in which they can make rail transportation even safer. For example, the AAR's "interchange rules" contain equipment specifications in greater detail than the standards contained in the federal regulations. The interchange rules are a set of requirements agreed to by the railroads that ensure the safety and operational viability of railroad equipment transported on multiple railroads. The AAR

also has a research and technology subsidiary, the Transportation Technology Center, Inc. (TTCI), which conducts industry-funded research as well as research for the federal government and other entities.

The railroads' infrastructure investments and other safety efforts have borne fruit. Federal Railroad Administration (FRA) data show that the overall rate of train accidents per million train miles in 1996 was 68 percent lower than the 1980 rate and 23 percent lower than the 1990 rate.

The railroads are particularly pleased at the tremendous improvement in the industry's employee injury rate. Attached to my testimony is a graph showing that the 1996 rate of employee injuries per 100 full time employees was 67 percent below the 1980 rate and 52 percent below the 1990 rate. At a meeting last month of the FRA's Rail Safety Advisory Committee (RSAC), Administrator Molitoris reported that preliminary 1997 data show further safety improvements.

Also enclosed with my testimony is a chart showing that according to Department of Labor statistics, the railroad industry's employee injury rate is substantially lower than the injury rates for other freight transportation modes. Indeed, the railroads' employee injury rate is lower than the rate for the private sector as a whole, as well as major sectors

such as mining, manufacturing, construction, and agriculture.

The striking improvement in the employee injury rate, as well as the industry's favorable accident trend, clearly could not have been accomplished without the efforts of the men and women working on the railroads. The cooperative efforts of management and labor to tackle problems such as fatigue, which I will describe later in my testimony, bode well for further reductions in accidents and injuries.

On the regulatory front, the FRA has begun to utilize the RSAC process to address several safety issues. The FRA is to be commended on its efforts to seek input from knowledgeable parties before launching rulemaking proceedings. Whether through RSAC or some other process, the railroad regulatory system benefits when the FRA engages in dialogue with interested parties before initiating formal notice and comment rulemaking proceedings.

In addition to specific regulatory initiatives addressed through RSAC and formal rulemaking proceedings, the FRA and the Surface Transportation Board (STB) over the last two years have launched broad reviews of the safety programs of the major railroads.

Through its "safety assurance and compliance programs," FRA is thoroughly reviewing several major

railroads' approach to rail safety. The STB is conducting a detailed safety review of Norfolk Southern's and CSX Transportation's plans to integrate Consolidated Rail Corporation into their operations and also has instituted a proceeding to explore the extent to which safety should be considered by the agency in future STB proceedings.

These broad reviews of the safety programs of individual railroads should not detract from the successful efforts over the last two decades to make rail transportation safer. And industry initiatives such as the ones I'm about to describe will result in even further improvement.

II. Safety Initiatives

1. Fatigue Countermeasures

While study of the impact of fatigue on workplace safety dates back to the early part of this century, recent years have seen intense scrutiny. Much has been learned about the effects of sleep deprivation, circadian rhythms, and other relevant issues. However, there is still no blueprint on how to address the problem of fatigue.

Thus, in 1992 the railroads, the Brotherhood of Locomotive Engineers, and the United Transportation Union formed the "Work/Rest Review Task Force" to

compile pertinent information and keep abreast of developments in the field. To study the relationship between work shift variables and accidents and injuries, the Task Force has developed a database of approximately five million railroad engineer work shifts, plus injuries occurring during those shifts. The Task Force has also compiled a list of fifty variables describing work shifts on major railroads.

Furthermore, the Task Force has described fatigue countermeasures employed by railroads in the enclosed report, "Current Status of Fatigue Countermeasures in the Railroad Industry." Given all the uncertainty regarding ways of attacking fatigue, various railroads and rail labor have launched a variety of pilot projects and other initiatives addressing fatigue, discussed in detail in the report. Ongoing initiatives include:

- agreements with rail labor on assigning blocs of time for the beginning of shifts and assigned rest days for road train crews;

- pilot programs on two Class I railroads providing for permitted napping on stationary trains and before/after operating trains;

- expanded periods of rest between assignments;
- the use of headsets to reduce noise and facilitate communication;

- the use of devices that monitor the alertness of the train crew; and
- educational programs about fatigue for employees and their families.

2. Train Control Programs

Railroads employ a variety of train control systems. The type of train control used in a region will depend on overall traffic density and the mix of intercity passenger, commuter, and freight operations.

Advanced systems can stop a train that is either exceeding a speed limit or proceeding past a stop signal.

The railroads are now investigating new train control systems called "positive train separation" (PTS) and "positive train control" (PTC). The basic objective of these systems is the prevention of mainline and siding train collisions, which accounted for 2 percent of the railroad accidents in 1996. It is expected that these systems will be capable of stopping trains to avoid collisions or accidents with track workers, as well as preventing trains from exceeding authorized speeds or passing through red signals. Several different types of PTS/PTC projects are underway.

PTS/PTC systems use computers on board locomotives to stop locomotives to avoid collisions. The precise location of locomotives is determined using global positioning system satellites. In some instances the computers communicate with dispatch offices; in some instances with wayside computers; and in some instances the computers use on-board proximity warning technology.

Dispatch Center Controller Technology

In this system, the locomotive reports its location to a dispatch center via radio. The dispatch center can issue movement instructions to the locomotive that will be enforced by the locomotive's computer.

Burlington Northern Santa Fe and Union Pacific, along with suppliers, are spending \$36 million to test this system in the Pacific Northwest. The FRA has contributed \$4 million towards the installation of a similar system on the Alaska Railroad, from Seward to Fairbanks.

Wayside Computer Technology

In this version of train control technology, the locomotive's computer transmits its location to computers along the track instead of a central dispatch center. The wayside computer can issue movement instructions to avoid accidents.

FRA has given Michigan \$9 million to test this system. Amtrak's Detroit - Chicago corridor will be equipped with 10 wayside computers and 40 Amtrak locomotives will be equipped with the necessary on-board equipment. CSX Transportation is also installing a similar system between Spartanburg, South Carolina, and Augusta, Georgia.

On-Board Proximity Warning Technology

Burlington Northern Santa Fe and Norfolk Southern are studying a system in which the locomotive's computer transmits its location to nearby trains. Using the information it receives from other locomotives on their locations, a locomotive's computer equipment can determine if there is a risk of a collision. If a locomotive engineer does not respond to a warning of a potential collision, the computer can stop the train.

Investigation of Interoperability

A major concern of the railroads and one that must be resolved before any PTS/PTC system can be considered feasible on a widespread basis is the issue of "interoperability," the extent to which PTS/PTC technologies under consideration are compatible. Norfolk Southern, CSX Transportation, and Consolidated Rail Corporation are conducting a pilot project between Harrisburg, Pennsylvania, and Manassas, Virginia, which is specifically investigating the extent to which equipment on a locomotive could be made compatible with multiple PTS/PTC technologies.

Earlier this month, the major freight railroads, Amtrak, FRA, and the Illinois Department of Transportation agreed on a four-year project to test PTC on the Chicago to St. Louis corridor. The railroads have committed up to \$20 million for this project. The FRA and Illinois currently have \$15 million available. This project will allow industry and government to test the interoperability and viability of different PTS/PTC systems.

3. Reducing Vehicle Failures

The rate of accidents attributable to equipment defects per million train miles fell 77 percent from 1980 to 1996. The railroads have a number of programs underway to continue the trend.

AAR previously reported to this Committee that heat-treated curved plate wheels are much less prone to failure than straight plate wheels. In the late 1980's, the AAR prohibited the installation of straight plate wheels. This year, AAR's interchange rules will be amended to accelerate the replacement of existing straight plate wheels by tightening the requirement that these wheels be removed when exhibiting wear.

On the research front, the AAR is examining acoustic bearing defect detectors. Heretofore, the defect detectors used by railroads to find wheel bearing problems have relied on heat. Acoustic bearing defect detectors could be a significant innovation because they would detect problems *before* bearings become overheated.

AAR also is researching the use of on-board sensor systems in lieu of wayside detectors. On-board sensors would be a significant innovation because they would constantly monitor for problems such as defective roller bearings, selected wheel defects, and worn suspension systems. In contrast, current wayside detectors work only when a train passes by.

Another subject for research is electronically controlled pneumatic (ECP) brakes. Traditional air brakes rely on air pressure in a brake pipe running from the locomotive to all the cars in a train. An

engineer applies the air brakes by reducing the air pressure in the brake pipe. A control valve on each of the cars senses the reduction in air pressure and causes stored air pressure in the car's reservoir to be transferred to a brake cylinder. Through a chain reaction of movement of the piston in the brake cylinder, brake rigging, and the brake beam, the brake shoes are pushed against the wheels of the train, causing braking. Brakes are released by increasing the pressure in the brake pipe, which results in the reversal of the process just described.

ECP brakes bypass the brake pipe by using electrical signals to control the application of the brakes, but train line air pressure is still used to physically apply the brakes. An electrical system potentially would apply the brakes faster and permit a more precise graduated release. If found to be practical, ECP brake systems will enable locomotive engineers to control train speed with greater accuracy and reduce stopping distances.

Testing of ECP brakes is taking place at the Transportation Technology Center and on a number of revenue service trains. The AAR also is testing the interoperability of various suppliers' ECP systems.

In addition to looking at ECP brakes, the AAR continues to scrutinize the traditional air brake

system. AAR's Braking Systems Committee has just developed a brake cylinder leakage test which, effective this year, will be required to be performed on new freight cars and when cars are rebuilt or repaired. Whether through the use of ECP brakes or traditional air brakes, the industry expects to be able to show continued improvement in the rate of brake-caused accidents per million train miles, which decreased 74 percent from 1980 to 1996.

4. Track Improvements

From 1980 to 1996, the rate of accidents attributable to track defects per million train miles decreased 71 percent. The railroads, with FRA support, have a number of initiatives underway which will result in even fewer accidents:

- developing guidelines for assessing the strength of track after maintenance has been performed;

- evaluating the interaction between freight cars and track anomalies to minimize the risk of derailments;

- using automated equipment (track loading vehicles) to measure track strength;

- evaluating the ability of the load carrying suspension systems of rail cars to support heavy rail cars;

- researching state-of-the art rail materials and grinding techniques;
- investigating new methods of detecting broken rails and rail flaws;
- testing the new "bainitic" rail, which appears to be the best rail steel ever developed; and
- assessing and issuing guidelines for new welding techniques.

5. Certification of Repair Shops

This year, the AAR is expanding its certification program for freight car repair facilities to encompass approximately 1500 additional facilities. Any facility performing significant repairs will have to be certified and examined by inspectors.

6. Grade Crossing and Trespasser Programs

Grade-crossing and trespasser incidents together account for more than 90 percent of the fatalities associated with railroad transportation. These incidents are particularly difficult to address because they involve the behavior of individuals who are not employed by railroads. Furthermore, states, not the railroads, determine the type of warning provided at grade crossings.

Ninety percent of grade crossing fatalities are attributable to a driver failing to stop at a crossing or stopping and proceeding in error. While the railroads cannot control driver behavior, they are trying to educate the public about the life-or-death consequences of their actions at highway-rail grade crossings. A significant role is played by Operation Lifesaver, Inc., a nationwide organization supported by the railroads, rail suppliers, and DOT, that seeks to educate the public about the dangers of grade crossings and trespassing on rail rights-of-way. Operation Lifesaver is sponsoring the national "Highways or Dieways" campaign, which promotes highway-rail grade crossing safety through public service announcements. The campaign uses television, radio, print, and billboard advertising. The hard-hitting television advertisements have been widely recognized for their impact and have been featured on network news programs. Operation Lifesaver is actively promoting "Highways or Dieways" in most states.

The railroad investment in grade crossing safety is substantial. Annually, the railroads spend well over \$100 million maintaining and improving grade crossings, and spend millions more on grade crossing educational programs.

Congress, too, plays a vital role in addressing the grade crossing problem. Since 1973, the "section 130" grade crossing improvement program, authorized by 23 U.S.C. § 130, has provided federal funding for grade crossing improvements. There is no doubt that the section 130 program has played a significant role in the 60 percent decline in grade crossing incidents since 1980. Over that period of time, there has been a 35 percent decrease in the number of public grade crossings equipped only with signs. The Federal Highway Administration (FHWA) estimates that since 1974, the section 130 program has saved 10,000 lives and prevented 40,000 injuries.

Despite the clear impact on safety from grade crossing improvements, some states have not given grade crossing projects a high priority, and it is the states which make the decisions on the installation of active warning devices at grade crossings. Through the end of fiscal year 1997, almost \$110 million of section 130 program funds remained unspent and nearly \$200 million had been transferred to other federal-aid highway programs.

While the railroads are pleased that pending ISTEA reauthorization legislation would increase government funding of Operation Lifesaver, the railroads urge Congress to also increase spending levels for the

section 130 program. Furthermore, the railroads are disappointed that the pending legislation would give states greater flexibility to transfer crossing improvement funds to other programs. Congress should send the states a strong signal of the importance of grade crossing improvements by providing that section 130 program funds may not be transferred to other highway programs.

Insofar as trespasser accidents are concerned, ninety percent of the trespasser fatalities involve a trespasser being struck by a train, with the remaining attributable to causes such as falling off rail cars. Unlike other categories of accidents and incidents, the trespasser fatality data have not shown improvement over the last two decades.

Enforcement and education are the tools available to attack the trespasser problem. Aware of the issue, in 1994 Congress required DOT to develop model state legislation providing for penalties against those trespassing on railroad rights-of-way. In developing this legislation, DOT found that twenty states lacked trespassing laws specifically addressing railroad property. Just as important, DOT found that for the most part, the state laws that did exist had weak penalties.

Operation Lifesaver has just compiled a comprehensive "Trespasser Prevention Program" for use in the states. In addition to presentation materials, the program addresses education and enforcement strategies and should prove invaluable to state organizations addressing the trespasser problem.

III. Performance Standards

While the railroads are devoting substantial resources to safety initiatives, they also look forward to improvements in the regulatory structure that will encourage safety research and facilitate investments in productive safety programs. Specifically, the current regulatory system in which the FRA prescribes detailed operating requirements, often referred to as command-and-control regulations, should be replaced by performance standards.

The FRA's substantive safety regulations take up over 300 pages in the Code of Federal Regulations. Yet, in most cases a direct connection between any particular regulation and the industry's performance cannot be demonstrated. At times, the regulations have stood in the way of technological advances, with the industry required to obtain waivers to test or implement safety initiatives. For example, the current regulations will not permit deployment of PTS/PTC

systems. The FRA must issue waivers for field tests to be conducted.

The FRA's regulations should focus on performance objectives instead of the minutiae of railroad operations. The FRA's basic mission should be establishing performance standards and ensuring that the railroads' actual performance meets or exceeds those standards. In other words, the FRA should focus on safety results rather than promulgate detailed operating requirements which do not necessarily achieve specific safety targets.

For the same level of investment, performance standards should result in higher levels of safety than detailed operating requirements because performance standards would permit railroads to use the most cost-effective tools available to achieve safe performance.

Under the current regulatory regime, the FRA essentially makes investment decisions for the railroads. The FRA should concentrate on the safety outcome of railroad decisions, not second-guessing the detailed business decisions of railroad managers.

Both Congress and the Executive Branch have recognized the advantages of performance standards. In 1996, Congress enacted the Accountable Pipeline Safety and Partnership Act, which authorized the use of risk management plans for pipelines in lieu of the

traditional regulatory scheme. The risk management plan approach is essentially a performance standard approach.

On September 30, 1993, President Clinton demonstrated his commitment to performance standards by issuing Executive Order No. 12866, which stated:

Each agency shall identify and assess alternative forms of regulation and shall, to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt.

With Congressional support, the railroads look forward to working with the FRA on implementing the President's directive by applying performance standards to the railroads.

IV. "User Fees"

Finally, the railroads urge Congress to reject the Administration's attempt to resuscitate the so called railroad "safety user fee." This "user fee," which is really a tax, would amount to \$410 million over the next five years. The proposed tax would be extremely unfair.

The premise behind user fees is that entities which benefit from government programs should pay for them. User fees typically are imposed on entities which seek the facilities or services for which the fees are

imposed. Stating that railroads benefit from FRA's regulatory and safety enforcement program is both illogical and self-serving. The railroads certainly have not asked for FRA's safety program; the railroads have their own robust safety programs. Analogous agencies, such as the Occupational Safety and Health Administration, do not collect such fees from those they regulate.

In 1995, on a bipartisan basis, this Committee and the House Committee on Transportation and Infrastructure each rejected the Administration's proposal to extend this tax. Both the Senate and House budget committees chose not to include such a tax in the 1997 budget resolution.

The concept of user fees in appropriate instances is sound. For example, it is appropriate to charge highway users for the cost of their rights-of-way. Railroads, of course, pay for their own infrastructure.

In this case, the Administration's suggested railroad tax cannot be confused with true user fees. The railroads urge Congress to reject the Administration's proposal.

V. Conclusion

The railroads support a reauthorization bill unencumbered by mandates for new regulations. The

industry's safety record and ongoing programs demonstrate that the railroads are on the path to further safety gains.

The railroads appreciate the FRA's efforts to engage industry and other parties in a dialogue on safety regulation. The industry is committed to working with the FRA on important safety initiatives and looks forward to exploring with the FRA the clear advantages of a performance standard approach to safety regulation.

Finally, the Administration's attempt to reimpose safety "user fees" should be rejected. These user fees are patently unfair and would be a thinly-disguised tax.

Thank you for the opportunity to present the railroad industry's views on safety issues. I would be pleased to answer any questions that you have.